

POWAY LANDFILL

Status Update

31 August 2006



County of San Diego
Department of Public Works
Landfill Management
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AGENDA

- ◆ Work Completed
- ◆ Soil Vapor Results
- ◆ Vapor Phase Risk Assessment
- ◆ Potential Sources of VOCs in Soil Vapor
- ◆ Path Forward



Work Completed

- ◆ Installed 16 onsite soil vapor wells
- ◆ Installed 22 offsite soil vapor wells
- ◆ Installed 4 new groundwater monitor wells
- ◆ Sampled soil vapor wells in April, May, and July 2006
- ◆ Sampled 16 groundwater wells in July 2006



Work Completed

- ◆ Performed a vacuum pressure survey
- ◆ Evaluated landfill gas collection system
- ◆ Updated Vapor Phase Risk Assessment
- ◆ Conducted offsite source investigation



Soil Vapor Well Locations

Legend

⊕ Soil Vapor Well



Soil Vapor Sampling Methods

- ◆ May 2004 and June 2005 used temporary probes
- ◆ April, May, and July 2006 used permanent probes



Soil Vapor Sampling Methods

April, May and July 2006 Sampling Methods



Soil Vapor Results



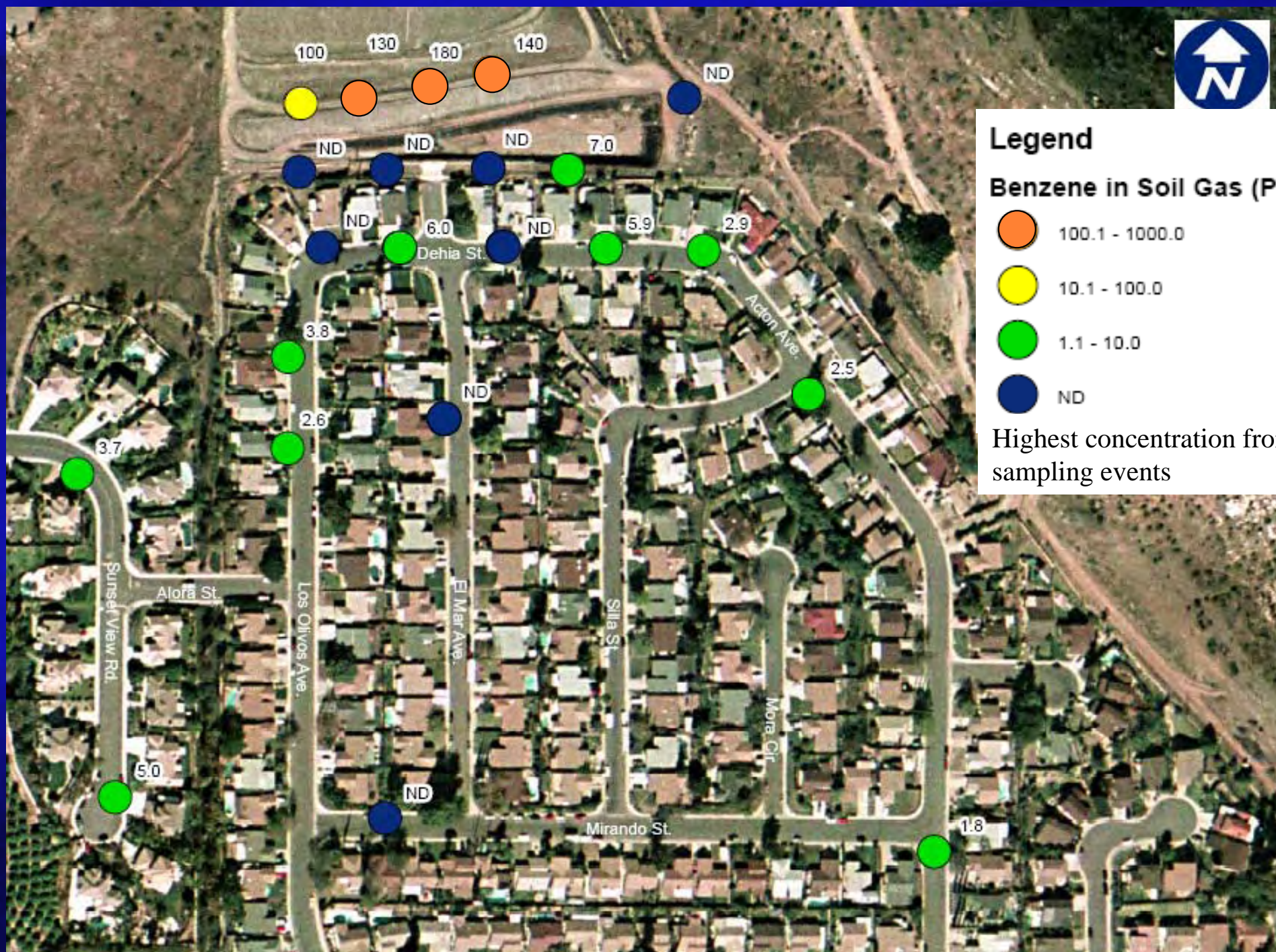
Volatile Organic Compounds (VOCs) in Soil Vapor Samples

VOCs which pose the greatest potential risk;

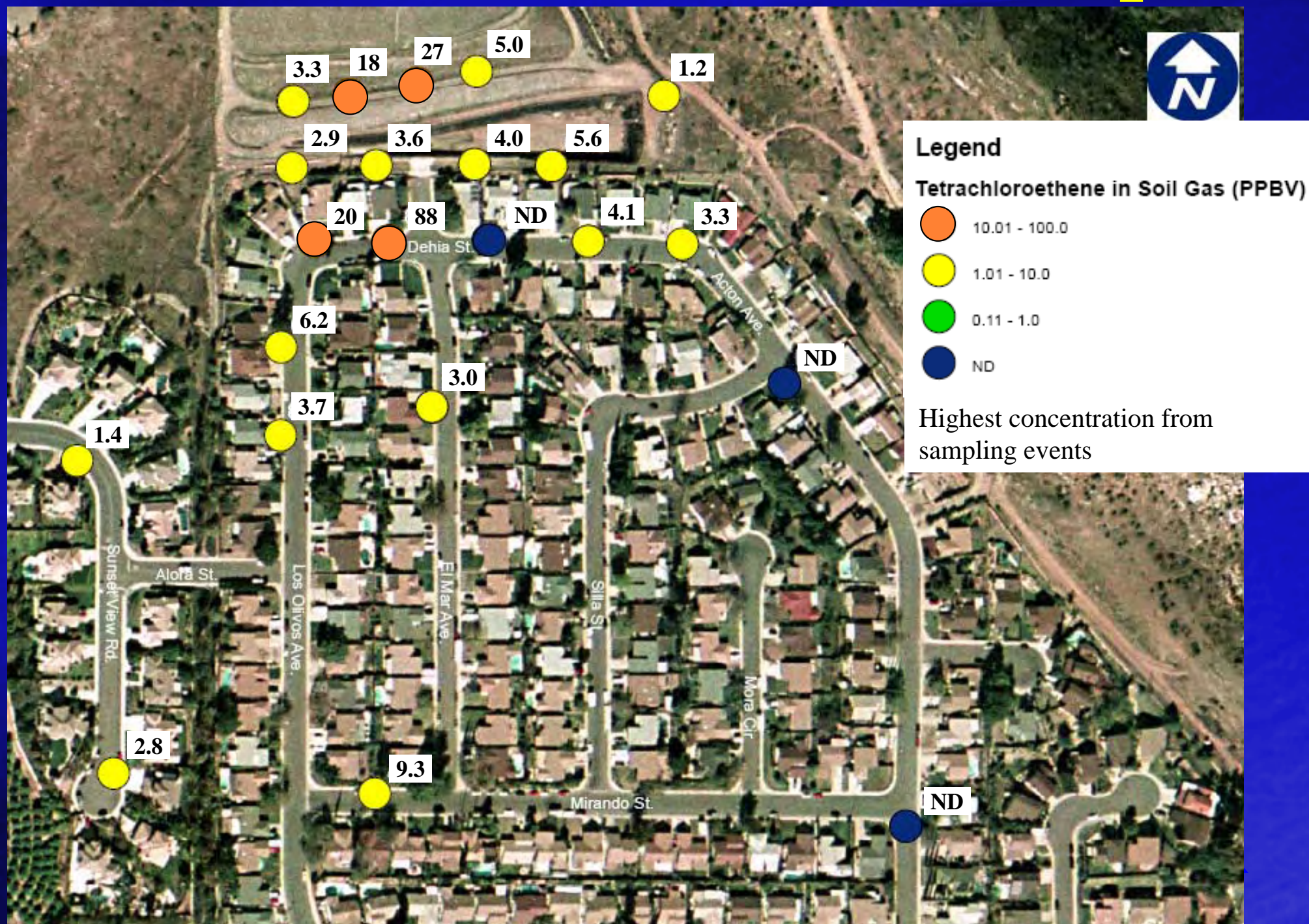
- ◆ Benzene
- ◆ Tetrachloroethene (PCE)
- ◆ Trichloroethene (TCE)



Benzene



PCE Concentrations in Soil Vapor

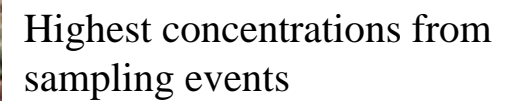


Legend

Trichloroethene in Soil Gas (P)

- Orange circle: 10 - 100
- Yellow circle: 1.0 - 10
- Green circle: 0.1 - 1.0
- Blue circle: ND

Highest concentrations from sampling events



Summary of Soil Vapor Results

- ◆ Vapor concentrations generally greatest in landfill gas samples
- ◆ VOCs decrease to low levels between the toe of the landfill and the southern landfill property boundary
- ◆ Variable within the residential community



Summary of Soil Vapor Results

- ◆ VOC concentrations detected during the April, May and July 2006 sampling events are significantly lower than previous events
- ◆ Attributed to improved sampling methods used in April, May and July 2006, which yield more consistent and repeatable results
- ◆ Continued monitoring will be performed to evaluate seasonal variations



Vapor Phase Risk Assessment

Background Cancer Rate:

- ◆ American Women: 1 in 3 (33%)
- ◆ American Men: 1 in 2 (50%)

According to USEPA, Cal-EPA DTSC, and DEH guidance, 1 in 1,000,000 (0.0001%) incremental cancer risk is below a level of concern



Vapor Phase Risk Assessment

- ◆ Used maximum concentrations from each permanent vapor well
- ◆ Cancer Risks are worst-case estimates of risk
- ◆ Cancer Risks range from approximately 1 in 1,000,000 to 1 in 10,000,000
- ◆ Cancer Risks are below levels of concern according to USEPA, DTSC, and DEH guidance



Vapor Phase Risk Assessment



Offsite Source Investigation

- ◆ Onsite and offsite storm water and sediment sampling
- ◆ Soil vapor sampling from above and within underground utilities
- ◆ Historical land use evaluation
- ◆ VOCs were detected below levels of concern
- ◆ Results do not indicate any specific offsite sources



PATH FORWARD



Additional Ongoing Work

- ◆ Groundwater Sampling
 - Installation of additional wells
 - Evaluate nature and extent of VOCs
- ◆ Soil Vapor Sampling
 - Semi-annual sampling of vapor wells
 - Update human health risk assessment
- ◆ Landfill Gas Control System Evaluation
 - Maximize landfill gas being removed by extraction system



Landfill Gas Control System Enhancements

- ◆ Detailed analysis of landfill cover
- ◆ Analysis of existing extraction system efficiency
- ◆ Installation of additional landfill gas extraction wells
- ◆ Enhanced operation of gas collection system
- ◆ Analysis of landfill storm water conveyance system
- ◆ Performance monitoring of landfill gas collection system improvements
- ◆ Implementation of landfill gas mitigation alternatives.



Summary

- ◆ Excess Incremental Cancer Risks range from 1 in 1,000,000 to 1 in 10,000,000
- ◆ Risk is below levels of concern according to USEPA, DTSC, and DEH guidance
- ◆ The County DPW will continue to:
 - Implement landfill gas control system enhancements
 - Perform soil vapor monitoring
 - Perform groundwater assessment and monitoring
 - Evaluate potential risk
 - Conduct routine maintenance and inspections



Discussion



